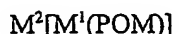


CLAIMS

1. A luminescent particle comprising one or more compounds of the formula:

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wherein:

$M^2$  is a cation,  $M^1$  is an ion of a metal capable of providing a luminescent centre or a mixture of two or more thereof, and  
10 POM is a polyoxometallate, a polythiometallate or a polyoxythiometallate of at least one metal of group VA or VIA of the Periodic Table and, optionally, a hetero atom X, the amounts of X,  $M^1$ ,  $M^2$  and POM being such as to provide overall neutrality.

2. A particle according to claim 1 wherein  $M^1$  is  $Eu^{3+}$ ,  $Tb^{3+}$ ,  $Dy^{3+}$ ,  $Tm^{3+}$ ,  
15  $Er^{3+}$ ,  $Cr^{3+}$ ,  $Ce^{3+}$ ,  $Pr^{3+}$ ,  $Sm^{3+}$ ,  $Nd^{3+}$ ,  $Ho^{3+}$ ,  $Yb^{3+}$ ,  $Ti^{4+}$  or  $Mn^{4+}$ .

3. A particle according to claim 2 wherein  $M^1$  is  $Dy^{3+}$ ,  $Eu^{3+}$  or  $Tb^{3+}$ .

4. A particle according to any one of the preceding claims wherein M is vanadium, niobium, tantalum, molybdenum or tungsten.

5. A particle according to claim 4 wherein M is molybdenum or  
20 tungsten.

6. A particle according to any one of the preceding claims wherein POM contains a heteroelement X.

7. A particle according to claim 6 wherein X is a transition metal or B, Al, Si, P, S, Ga, Ge, As, Se, In, Sb, Te, I, Pb or Bi.

25 8. A particle according to claim 7 wherein X is Si or Al.

9. A particle according to any one of the preceding claims in which the polyoxymetallate comprises  $MO_6$  octahedra.

10. A particle according to any one of the preceding claims wherein M represents more than one metal.

30 11. A particle according to any one of the preceding claims wherein the

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compound contains at least 15 oxygen atoms.

12. A particle according to any one of the preceding claims having a quantum efficiency that is at least 1%.

13. A particle according to claim 12 wherein the quantum efficiency is at least 5%.

14. A particle according to any one of the preceding claims wherein  $M^2$  is an ion of hydrogen or a metal of group 1A or 2A of the Periodic Table or an optionally substituted ammonium ion, or a mixture of two or more said ions.

15. A particle according to claim 14 wherein  $M^2$  is sodium, potassium or optionally substituted ammonium.

16. A particle according to claim 15 wherein  $M^2$  is sodium or ammonium.

17. A particle according to any one of the preceding claims which has a diameter not exceeding 20 nm.

18. A particle according to claim 17 which has a diameter not exceeding 5 nm.

19. A particle according to any one of the preceding claims which possesses a coating rendering the particle suitable for biotagging application.

20. A particle according to claim 19 wherein the coating is of silica.

21. A particle according to claim 1 substantially hereinbefore described.

22. A process for preparing a particle as claimed in any one of the preceding claims which comprises dissolving a water soluble salt of an oxo/thiometallate of M and optionally of an oxo/thioanion of X and a water soluble salt of  $M^2$  in water, adding acid, and then adding a water soluble salt of  $M^1$  and recovering the resulting product.

23. A process according to claim 22 wherein the salts are all of  $M^2$ .

24. A process according to claim 22 or 23 wherein the acid is acetic acid or hydrochloric acid.

25. A process according to any one of claims 22 to 24 wherein the mixture is heated before the acid is added.

26. A process according to any one of claims 22 to 25 wherein a water

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soluble salt of an oxo/thio anion of X is added with the water soluble salt of the oxo/thiometallate of M.

27. A process according to claim 22 substantially as described in any one of the Examples.

- 5 28. A particle as claimed in any of claims 1 to 21 for use in biotagging, drug discovery/development, electroluminescent displays, magnetic centres of coatings, security marking/labelling/identification, drug delivery, non-destructive testing or in agricultural products.